CITY OF EAST CHICAGO
Anthony Copeland, Mayor

5201 Indianapolis Boulevard
East Chicago, IN 46312
Phone: (219) 391-8466
Fax: (219) 391-8254

May 2, 2018

Dennis Zawodni
Sr. Compliance Manager
Safety-Kleen Systems, Inc.
601 Riley Road
East Chicago, IN 46312

RE: Safety-Kleen comments on the Local Limit Study

This letter provides responses to the comments received from Safety-Kleen on the Local Limit Study that was prepared by the East Chicago Sanitary District (District) and provided to all permitted Industrial Users for comments. No other comments were received on the Local Limit Study. According to your letter, the specific focus of your comments concerned the re-development of the local limit for cyanide (amenable) for industrial users to the District's Publically-Owned Treatment Works (POTW). Safety-Kleen noted its concerns of the specific assumptions and approaches used to develop the local limit for cyanide (amenable) including:

- The sampling frequencies and methods used to develop the existing loadings to the POTW;
- The removal efficiency calculations for cyanide reduction across ECSD's POTW; and,
- The allocation method utilized to develop the local limits.

In addition, the proposed local limit assumes no adjustment to the local limit if the Site-Specific Criteria Cyanide (Free) Modification Request for the West Branch of Grand Calumet River (WBGCR), currently being reviewed by the Indiana Department of Environmental Management (IDEM) and the United States Environmental Protection Agency (USEPA), is accepted. Below you will find responses to your specific comments concerning the development of the local limits as proposed in the study.

Safety-Kleen Comment 1 - Sampling Data (Section 3 and Attachment C of the ECSD LL Study Document)

"Based on a review of the ECSD LL Study, ECSD estimated contributions from domestic/commercial sources of cyanide (amenable) via grab sampling on seven (7) consecutive days from three pump stations for three events. The three pump stations, which are the Marktown, Magoun Avenue and Roxanna locations, were not all sampled during each event. In addition, it is unknown if the grab sampling was performed multiple times over a 24-hour period, as recommended by Section 4.5 of the EPA Local Limits Guidance Document, or as a single event only."

"Given that Safety-Kleen would anticipate the cyanide (amenable) concentrations to be non-detect for the residential/commercial sources, we would like to confirm that multiple grab samples were collected (minimum of 4 is recommended) for each event. In addition, we are questioning why all three pump station locations weren't sampled for cyanide (amenable) for each of the 3 events. At a minimum, we are requesting additional information on the cyanide (amenable) events, including number of grab samples collected per 24-hour

sampling event and specific reasons why all three pump stations were not sampled at the same time. Based on the information received, we may recommend an additional sampling round of all three pump stations for seven consecutive days be conducted. "

District Response: The Local Limit Study was prepared by the District's former consultant, Crowley Engineering. The study was based primarily on existing historical data and supplemented by additional data to fulfill specific data insufficiencies that were identified during the compilation of the data. As noted in the study, the characterization of the contributions of cyanide from domestic/commercial sources was determined through the sampling of three pump stations for a period of seven days. During the initial sampling event (September 29 through October 8, 2014), only the Magoun lift station was sampled. The Magoun lift station was selected to best represent uncontrolled domestic/commercial flows to the plant as it receives practically no permitted industrial flows. Only two permitted facilities, Buckeye Terminals (Outfall #124) and Electric Coatings (#312) have discharges that are received at the Magoun pump station. As noted in the study, the results of the first sampling event reported total cyanide concentrations and were disregarded (Table C.5 Collection Sampling Period 1). A second sampling event of the Magoun lift station was performed November 11 through November 19, 2014 with all samples analyzed for available cyanide. These results (Table C.6 Collection Sampling Period 2) were all reported as non-detect (<0.00083 milligrams per liter (mg/L)), consistent with Safety-Kleen's expectations.

At the request of the USEPA, the District completed an additional round of sampling to investigate the nature of the flows in its collection system which included sampling at two additional pump stations (Marktown and Roxanna) to further characterize the uncontrolled flow from domestic/commercial sources. This sampling event was completed during March 29 and April 7, 2016. Each of the reported available cyanide concentrations was basically non-detect. Several samples were reported as non-detect at varying detection limits whereas other samples were reported at concentrations below the typical reporting limit of 0.003 mg/L (Table C.7 Collection Sampling Period 3). The highest reported available cyanide concentration was 0.00302 mg/L.

The extremely low level and non-detect concentrations of available cyanide reported at all three pump stations during both sampling events is consistent with Safety-Kleen's anticipations. Although not part of the local limit study, available cyanide concentrations for samples collected on 11 occasions during the period of January 12 through February 5, 2016 at the Canal Street lift station characterize more industrial flows. The available cyanide concentrations for the Canal Street lift station samples ranged from 0.0096 mg/L to 0.0406 mg/L, each exceeding the current local limit of 0.003 mg/L. The Canal Street lift station was not included in the local limit study because it does not represent domestic/commercial flows, but accepts a high volume of flow from several large industrial users, including Safety Kleen. Permitted industrial users that have contributory flow into the Canal Street lift station include Safety-Kleen (#901), US Steel (#931), Arcelor Mittal (#934 and #935), Praxair (#941) and US Gypsum (#951).

With regard to your question about grab sampling during the same 24-hour period, only one grab sample was collected for the available cyanide analysis. All other analyses are performed on a 24-composite sample. The sampling plan developed by our consultant did not believe that the collection of additional grab samples during the 24 hour period was necessary for this characterization of the lift station flows as samples were collected over seven consecutive days to evaluate any daily variability of the flows.

Based upon the data collected from the Magoun, Marktown and Roxanna lift stations to represent domestic/commercial flows, wherein the uncontrolled domestic/commercial flows were characterized as having minimal available cyanide concentrations consistent with Safety-Kleen's expectations, the District does not

believe any additional sampling of the collection system to further characterize the uncontrolled domestic/commercial flow is warranted.

Safety-Kleen Comment 2 - POTW Removal Efficiencies (Section 5 of the ECSD LL Study Document)

"Removal efficiency is the percentage of the influent pollutant loading that is removed from the waste stream across the entire POTW process. Based on a review of the ECSD LL Study Document, ECSD estimated a POTW removal efficiency of 21 % based on the mean removal efficiency (MRE) method. The 21 % removal efficiency is lower than what would be expected based on a review of Appendix R of the EPA Local Limit Guidance Document, which identifies a mean removal efficiency of 69% over an activated sludge process like the ECSD POTW process. Though the MRE method is one of the three recommended methods described in the EPA Local Limits Guidance Document, ATC does not believe this method is the most appropriate given the higher anticipated removal efficiencies. As an example, samples should be collected at a time period that accounts for the hydraulic retention lag across the POTW, as recommended pursuant to Section 5.1.1 of the EPA Local Limits Guidance Document. At a minimum, Safety-Kleen recommends additional information on the sampling events and the POTW system to evaluate if the appropriate hydraulic lag time was considered. Depending on the information reviewed, we may recommend additional sampling of the POTW influent and effluent be conducted."

District Response: The USEPA Local Limit Guidance Document allows for determination of the removal efficiency by three methods; Average Daily Removal Efficiency, Mean Removal Efficiency and the Decile Method. Our consultant chose to use the historical data to calculate the Mean Removal Efficiency for all POCs. The removal efficiency for available cyanide was developed using existing analytical data for the POC concentrations in our influent and effluent samples analyzed routinely as required by our NPDES permit with data collected from the period of January 2013 through December 2015. Calculation of the Average Daily Removal Efficiency could not be completed using the existing data as the effluent samples were not collected with an appropriate lag time to represent the hydraulic retention time within the POTW to be paired with the influent samples. Therefore, the Mean Removal Efficiency was used to calculate the removal efficiencies, consistent with USEPA Guidance which states that this method is recommended over the Average Daily method if less than 10 data pairs of influent and effluent data are available. The Mean Removal Efficiency is also less sensitive to variations in daily removal efficiencies.

The calculated removal efficiency for available cyanide of 21% is less than the 69% removal efficiency published in Appendix R of the guidance document. This calculated removal efficiency represents actual operating conditions for the District's POTW as opposed to the more liberal published removal efficiency value. The use of the removal efficiencies developed and reported by others should be limited to instances where site-specific data does not exist or is deemed inadequate. Moreover, as clearly stated in the guidance document, USEPA strongly suggests that site–specific data is preferred over removal efficiencies reported by others. This is contrary to ATC's statement that it does not believe the Mean Removal Efficiency Method is the most appropriate manner to calculate removal efficiency given the higher anticipated removal efficiencies published in Appendix R. Also, the use of the more conservative, site-specific calculated removal efficiency affords some liability protection for the District in meeting its NPDES discharge limits. Therefore, the District stands by its use of the Mean Removal Efficiencies calculated and presented in Table 5.1.

Safety-Kleen Comment 3 - Local Limits Allocation Method (Section 9 of the ECSD LL Study Document)

"Based on a review of the ECSD LL Study Document, ECSD assumed a uniform allocation for the proposed cyanide (amenable) limit of 19 ppb for the industrial users to the ECSD POTW. Section 6.4.2 of the EPA Local

Limits Guidance Document allows the flexibility of issuing local limits as uniform concentration-based limits, contributory-based flow-based limits, or contributory-based mass-based limits. In addition, Section 6.5 of the EPA Local Limits Guidance Document recommends that local limits allocation be determined based on a "common sense determination" approach that can include the technical feasibility of treatment. Safety-Kleen is recommending that the proposed limit of 19 ppb be modified to a contributory-based mass-based local limit based on the fact that over half of the 26 outfalls of the industrial users discharging to the ECSD POTW are not anticipated to contain detectable levels of cyanide (amenable) (i.e., 10 of the 26 outfalls discharge sanitary and non-contact cooling waters, two of the 26 outfalls have no discharge, one of the 26 outfalls discharge non-contact cooling waters and stormwater, and one of the 26 outfalls discharge boiler blowdown and sanitary)."

District Response: The District concurs with your observation that the USEPA Guidance Document allows for flexibility in the determination of local limits and allocation methods. However, this decision rests with the District as the Control Authority of the NPDES permit for its POTW and not with any outside agency. After thoughtful consideration, both the former and current Director of Utilities have decided to stay with the local limits determination based upon allocating uniform limits for all controlled discharges as opposed to the alternative flow-based or mass-based flow limits.

The USEPA Guidance Document states that a "common sense assessment" should be completed after determining and allocating local limits. Several factors to consider as part of this common sense assessment include, but are not limited to:

- Are the limits technically achievable?
- Can the POTW and dischargers determine compliance with the local limit?
- Are the limits sensible when considering actual conditions at the POTW and past compliance history?

Based upon our recommendation for the uniformly allocated local limit of all POCs, the District is of the opinion that each of the limits passes the common sense test. Although your recommendation to calculate the allocation based upon a contributory-based mass-based determination would increase the discharge limit afforded to Safety-Kleen, this would be inconsistent with the District's decision to use uniform local limits so as to not provide any economic advantage to any present or future industrial users and as Control Authority, manage and enforce its NPDES in accordance with USEPA and IDEM requirements.

Safety-Kleen Comment 4 - Site-Specific Criteria Modification Request

"Based on a review of the ECSD Local Limits Study Document, ECSD developed the proposed local limit for cyanide (amenable) without mention of the impending Site-Specific Criteria Cyanide (Free) Modification Request for the WBGCR. The Site-Specific Criteria Cyanide (Free) Modification, when approved, could result in an adjusted monthly average limit of up to 9 ppb. At a minimum, we recommend that the ECSD Local Limit Study Document reference the Site-Specific Criteria Cyanide (Free) Modification for the WBGCR and that the local limit for cyanide (amenable) will be adjusted upon approval of the Request."

District Response: The District agrees with your recommendation and will amend the Local Limit Study to reference the Site-Specific Criteria Cyanide (Free) Modification submitted to USEPA and IDEM for consideration of amending the current NPDES permit value for cyanide. As the Local Limit Study has shown, the local limit for available cyanide limit was determined based upon the current monthly average in our NPDES. In fact, the primary reason for completing the Local Limit Study was to rectify an error wherein the NPDES discharge limits were not used correctly in establishing the current local limit for cyanide. The USEPA has not provided any additional comment on the proposed Site-Specific Criteria Cyanide (Free) Modification since it had found the submittal deficient. The District has asked for an official denial of the request, but to our knowledge, has not received one to date. If and when the Site-Specific Criteria Cyanide (Free) Modification is

approved, the District will complete a local limit study strictly for cyanide to develop a new local limit based on the new NPDES limits.

We trust that this addresses your concerns and comments.

Sincerely,

Abderrahman Zehraoui, PhD.
Director of Utilities

CC: Anthony DeBonis, ECSD Counsel
File (Local Limits 2017)